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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,259	12/16/2004	Peter A Lewis	GB 020102	6686

65913 7590 05/15/2008

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NXP INTELLECTUAL PROPERTY DEPARTMENT
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EXAMINER	
HU, RUI MENG	

ART UNIT	PAPER NUMBER
2618	

NOTIFICATION DATE	DELIVERY MODE
05/15/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No.	Applicant(s)	
	10/518,259	LEWIS, PETER A	
	Examiner	Art Unit	
	RuiMeng Hu	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-12 and 14-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-12 and 14-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed have been fully considered but they are not persuasive.

Regarding claim 1, applicant argues that the applied reference Salembier discloses comparing a filter output signal (a number) with a fixed threshold (another number). The threshold R0 cannot reasonably be considered to be a stored impulse wavelet. A wavelet, as that term is understood, has time dimension and cannot be represented as a single value. As described in the specification, a wavelet is a sequence of data perturbation values (specification of present application, page 5, lines 12-17).

However, claim 1 claims comparison means for comparing the stored impulsive wavelet representation with a wavelet arising in the received signal. Claim 1 fails to specifically claim the stored impulsive wavelet or the stored impulse wavelet representation is a sequence of data perturbation values. The phrase "representation" is a vague term and the interpretation of the stored impulse wavelet representation is not limited to a wavelet, thus threshold R0 can reasonably be considered to be the stored impulsive wavelet (clicks noise) representation.

In figure 3 of Salembier, the click detector 310 and comparator 320 together is considered to be *the comparison means*, wherein the comparison means for comparing the threshold R0 with the received signal (the input signal of click detector 310), in which the received signal comprises clicks noise (an impulse wavelet).

Response to Amendment

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 1, 3-12 and 14-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nokes (EP 1043874)** in view of **Salembier et al. (US Patent 4879729).**

Consider **claim 1**, Nokes clearly discloses a digital receiver arrangement (paragraph 0008, figure 4) comprising a tuner/demodulator circuit (tuner 34) and analogue-to-digital converting means (ADC 36), means (paragraph 0015) for determining if an interference impulse is present in a received signal, and clipping the interference impulse only if an interference impulse is determined to be present in the received signal so as to counteract the effect thereof within the received signal.

However, Nokes fails to specifically disclose means for storing an impulse wavelet representation characteristic of an impulsive noise event, means for combining the stored representation of the impulse wavelet with the detected received impulse only if an interference impulse is determined to be present in the received signal so as to counteract the effect thereof within the received signal, wherein the means for determining if an impulse arises comprises comparison means for comparing the stored impulse wavelet representation with a wavelet arising in the received signal.

In the same field of endeavor, Salembier et al. disclose a circuit/method for canceling impulsive noise wavelet (clicks is characterized by the appearance of very short pulses having a large energy/amplitude) in a digital system (figures 3, 7a, column 1 lines 21-53, column 6 line 46-column 7 line 13) comprising means (click detector) for determining if an impulse interference event is found within an incoming signal, means (memory 341a comprising values to be subtracted) for storing an impulse wavelet representation characteristic of an impulsive noise event, means for combining (sum 343a) the stored representation of the impulse wavelet with the detected received impulse (output of filter 200) only if an interference impulse is determined to be present in the received signal so as to counteract the effect thereof within the received signal (comparator 320 compares the output of click detector with a threshold before carrying out subtraction process in sum 343a), wherein the means (figure 3, click detector 310, comparator 320) for determining if an impulse arises comprises comparison means (comparator 320) for comparing the stored impulse wavelet representation (column 5

lines 34-37, the value of the reference threshold R_0) with a wavelet arising in the received signal (the output signal of the click detection circuit 310).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the selection technique taught by Salembier et al. into the art of Nokes as to include the clicks (impulsive noise) removing/correction circuit 300 as to provide an alternative way (other than clipping and replacing methods) to efficiently remove impulsive wavelets from the received digital signal.

Consider **claim 3 as applied to claim 1**, Nokes as modified by Salembier et al. discloses wherein the comparison means comprises a cross-correlator (Salembier et al. comparator 320).

Consider **claim 4 as applied to claim 1**, Nokes as modified by Salembier et al. discloses wherein the comparison means includes optimal filtering means (Salembier et al. comparator 320 and decision circuit 330 can be considered as an optimal filter).

Consider **claim 5 as applied to claim 1**, Nokes as modified by Salembier et al. discloses wherein the means for introducing the stored representation to the received signal includes subtractor means for subtracting the stored wavelet representation from the incoming impulse wavelet (Salembier et al. sum 343a subtracts).

Consider **claim 6 as applied to claim 1**, Nokes as modified by Salembier et al. discloses including means for determining the likely form of impulse wavelet and for introducing such likely form to the said means for storing an impulse wavelet representation (Salembier et al. click detector for detecting different lengths of clicks

that may affect one or several transmitted symbols, memory 341a stores different values to be subtracted).

Consider **claim 7 as applied to claim 6**, Nokes as modified by Salembier et al. discloses wherein the estimate of the shape of the impulse wavelet is created by means of a test signal (Salembier et al. the decoupled signal from output of demodulator 100 can be considered as a test signal).

Consider **claim 8 as applied to claim 1**, Nokes as modified by Salembier et al. discloses wherein the means for storing the impulse wavelet is arranged to receive a pre-programmed representation of the wavelet (Salembier et al. memory 341a stores values in advance).

Consider **claim 9 as applied to claim 1**, Nokes as modified by Salembier et al. discloses including prediction means for predicting the likely shape of an impulse wavelet for storage within the said means for storing (Salembier et al. memory 341a stores values in advance).

Consider **claim 10 as applied to claim 1**, Nokes as modified by Salembier et al. discloses including means for scaling the stored impulse wavelet having regard to characteristics of the impulse wavelet within the received signal (Salembier et al. memory 341a stores values in advance wherein the values are pre-scaled and to be subtracted).

Consider **claim 11 as applied to claim 10**, Nokes as modified by Salembier et al. discloses wherein the said characteristic comprises at least one of the amplitude and

phase of the impulse wavelet within the received signal (Salembier et al. clicks having short pulse with a very large amplitude, memory 341a stores amplitude values).

Consider **claim 12**, Nokes clearly discloses a method of receiving a digital signal including the steps of demodulating the signal (figure 4, tuner 34), and conducting an analogue-to-digital conversion of the signal (figure 4, ADC 36), determining if an impulse interference event is found within an incoming signal (paragraph 0015, figure 4, impulse processor 38) and clipping the interference impulse only if an interference impulse is determined to be present in the received signal so as to counteract the effect thereof within the received signal.

However, Nokes fails to disclose steps of storing an impulse wavelet representation characteristic of an impulsive noise event, and combining the said stored wavelet representation with the received impulse interference event only if an interference impulse is determined to be present in the received signal so as to counteract the effect thereof, wherein said step of determining includes comparing the stored impulse wavelet representation with a wavelet within the received signal.

In the same field of endeavor, Salembier et al. disclose a circuit/method for canceling impulsive noise wavelet (clicks is characterized by the appearance of very short pulses having a large energy/amplitude) in a digital system (figures 3, 7a, column 1 lines 21-53, column 6 line 46-column 7 line 13) comprising means (click detector) for determining if an impulse interference event is found within an incoming signal, means (memory 341a comprising values to be subtracted) for storing an impulse wavelet representation characteristic of an impulsive noise event, means for combining (sum

343a) the stored representation of the impulse wavelet with the detected received impulse (output of filter 200) only if an interference impulse is determined to be present in the received signal so as to counteract the effect thereof within the received signal (comparator 320 compares the output of click detector with a threshold before carrying out subtraction process in sum 343a), wherein said step of determining includes comparing (figure 3, comparator 320) the stored impulse wavelet representation (column 5 lines 34-37, the value of the reference threshold R_0) with a wavelet within the received signal (the output signal of the click detection circuit 310).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the selection technique taught by Salembier et al. into the art of Nokes as to include the clicks (impulsive noise) removing/correction circuit 300 as to provide an alternative way (other than clipping and replacing methods) to efficiently remove impulsive wavelets from the received digital signal.

Consider **claim 14 as applied to claim 12**, Nokes as modified by Salembier et al. discloses the step of subtracting the stored wavelet representation from the received impulse interference event (Salembier et al. sum 343a subtracts).

Consider **claim 15 as applied to claim 12**, Nokes as modified by Salembier et al. discloses including the step of estimating the wavelet representation to be stored (Salembier et al. memory 341a stores values in advance).

Consider **claim 16 as applied to claim 12**, Nokes as modified by Salembier et al. discloses including the step of scaling the stored wavelet representation responsive

to characteristics of the received signal (Salembier et al. memory 341a stores values in advance wherein the values are pre-scaled and to be subtracted).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RuiMeng Hu whose telephone number is 571-270-1105. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RuiMeng Hu
R.H./rh
May 7, 2008

/Edward Urban/

Supervisory Patent Examiner, Art Unit 2618

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/518,259	LEWIS, PETER A	
	Examiner	Art Unit	
	RuiMeng Hu	2618	